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- ### Appendix 1
- In addition to the new species, the following material was examined:
- Hyperolius acutirostris* – Cameroon: ZMHB 8470, 65177 (formerly also under ZMHB 8470) (syntypes).
- Hyperolius bolifambae* – Osomba, Nigeria: BMNH 1966.273.
- Hyperolius cinnamonomeoventris* complex – Andarada, Angola: MRAC 60559-60; Anhoca, Angola: BMNH 1904.5.2.116-118; Congulu, Angola: BMNH 1936.8.1.223-224; Dundo, Angola: MRCA 60557-58; Matala, Angola: MRAC 60291; River Kakueje, Angola: MRCA 60556; Lambaréné, Gabon: ZFMK 73111-112, ZMHB 8830 (syntype of *H. fimbriolatus* PETERS, 1876), 65178 (formerly also under ZMHB 8830; syntype of *H. fimbriolatus*), ZMHB 8829, 53264-265 (three syntypes of *H. olivaceus* PETERS, 1876); Kakamega, Kenya: Forest: ZFMK 77431-433.
- Hyperolius fusciventris* – Sierra Leone: BMNH 1947.2.9.59-60 (syntypes of *H. aylmeri* NOBLE, 1924).
- Hyperolius guttulatus* – Africa: BMNH 1947.2.9.30-31 (syntypes); BMNH 1947.2.9.56 (holotype of *H. reticulatus*); Sapoba Forest Reserve, Nigeria: BMNH 1980.1570.
- Hyperolius* cf. *kuligae* – Rumpi Hills, Cameroon: BMNH 1985.594-596.
- Hyperolius mosaicus* – Ngam, Sangmelima, Cameroon: MHNG 965.12-21 (holotype and nine paratypes); Monts Cristal, Gabon: ZFMK 73140-142.
- Hyperolius ocellatus* – Monts Cristal, Gabon: ZFMK 73218-219.
- Hyperolius pardalis* – Bitye, Cameroon: BMNH 1947.2.26.2-10 (nine syntypes); Monts Cristal, Gabon: ZFMK 73151-155.
- Hyperolius phantasticus* – Benito River, French Congo (= Equatorial Guinea): BMNH 1947.2.920 (holotype); Monts Cristal, Gabon: ZFMK 73194-196.
- Hyperolius platyceps* – Benito River, French Congo (= Equatorial Guinea): BMNH 1947.2.9.57-58 (syntypes); Cameroon: BMNH 1903. 7.28.27,

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1908.5.30.71, 1937.12.1.24; Zenia, Cameroon: BMNH  
1947.2.48 (holotype of *Rappia pleurotaenia*  
BOULENGER, 1906).

*Hyperolius riggenbachi* – Bamenda, Cameroon: BMNH  
1976.2428-2439; Obudu Plateau, Nigeria: BMNH 1980-  
1591.

## The Rediscovery of *Nemedina alamirabilis* Chandler from Hungary (Diptera: Empidoidea), and First Description of the Male

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**Abstract.** *Nemedina alamirabilis* Chandler is rediscovered in Hungary, including the collection of the first male specimens of this species. The male is described and genitalic features discussed and compared to congeneric species. The sister group relationships between *Nemedina* and the Atelestinae is confirmed.

**Key words:** Diptera, Empidoidea, *Nemedina*, Palearctic, male, systematics

### 1. INTRODUCTION

Over the past five years, much new information on the *Nemedina* genus-group has been published. *Nemedina alamirabilis* Chandler, 1981, the type species, was described over 20 years ago on the basis of a single, slide-mounted female specimen from Hungary (CHANDLER 1981). A second species, *N. eocenica* Sinclair & Arnaud, 2001, represented by a pair in copula was discovered in Baltic amber (SINCLAIR & ARNAUD 2001). Prior to the publication of this Baltic amber species, GRIMALDI & CUMMING (1999) published a review of Eremoneuran Cretaceous ambers and described five new genera assigned to the *Nemedina* genus-group. Most recently SINCLAIR & SHAMSHEV (2003) described a new species from Kazakhstan, *N. zaitsevi* Sinclair & Shamshev, 2003, which included the first detailed description of the male terminalia. On the basis of the latter study, convincing evidence was presented for the sister group relationship between the *Nemedina* genus-group and the Atelestinae.

Ever since its first discovery, additional specimens of *N. alamirabilis* were sought after. It was collected in 1960 and was never recollected again until the spring of 2002. No other specimens have been found in Museum collections and the holotype had until recently been misplaced in the Hungarian Natural History Museum. Given the apparent rarity of collections of extant species and limited species diversity of *Nemedina* compared to its fossil history, it would appear that this unique genus group was much more diverse in the past than today, especially during the Cretaceous.

In this paper, the collection of additional specimens is reported and the male of *N. alamirabilis* is described for the first time.

### 2. MATERIAL AND METHODS

This study is based on materials housed in the Diptera collections of the Hungarian Natural History Museum, Budapest (HNHM) and Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn, Germany (ZFMK).

Pinned adult specimens were examined only. The morphological terms mainly follow MCALPINE (1981). The interpretation of the genital sclerites follows CUMMING et al. (1995) and SINCLAIR (2000). To facilitate observation, dissections were macerated in hot 85% lactic acid and immersed in glycerin.

### 3. RESULTS

#### 3.1 Taxonomy

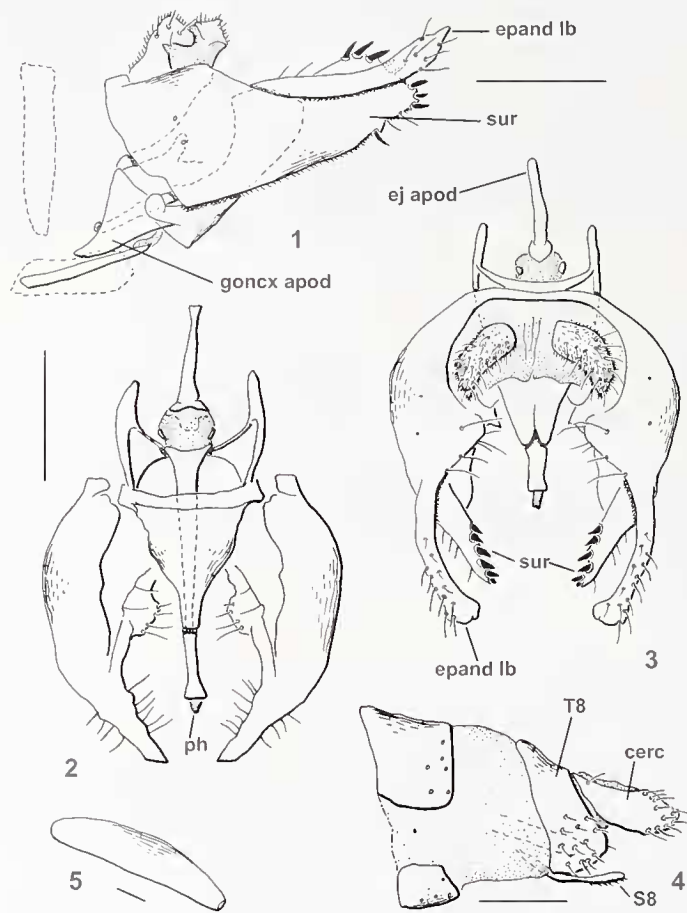
##### 3.1.1 *Nemedina alamirabilis* Chandler Figs. 1-5

**Type material:** Holotype female (mounted in Canada balsam on a round micro-cover glass (diameter 12 mm), attached to a white card of 19 x 12 mm; wings hardly visible): This label (card) bears in the handwriting of P. Chandler: "*Nemedina alamirabilis* sp. n. HOLOTYPE ♀". Three additional labels pinned below: "Bükk-hg. erdő [forest] 1960. V. 29."; "leg. Tóth S."; "Holotypus" [red – 17x10 mm, printed] (HNHM).

**Additional material:** Melegmány TT [Természetvédelmi Terület (Nature Reserve)]: Pécs, Melegmányi-völgy [valley], 2002.május [May] 31, patak fölött és mellett [over and along the brook], leg. Papp L. (♂, 3♀ HNHM; ♀ ZFMK).

**Diagnosis:** Small, shining black, slightly humped-back, with short legs and hyaline wings. Very similar to *N. zaitsevi*, but differing by its dark haltere, dark legs, postpedicel ovate-conical, and male terminalia with epandrial lobes slender, arched and extending well beyond the epandrial lamellae.





**Figs 1-5.** *Nemedina alamirabilis*. (1) male terminalia (lateral view; sclerites of segment 8 outlined); (2) male terminalia (ventral view, epandrial lobes omitted); (3) male terminalia (dorsal view); (4) female terminalia (lateral view); (5) egg. Scale bars = 0.1 mm. Abbreviations: cerc, cercus; ej apod, ejaculatory apodeme; epand lb, epandrial lobe; goncx apod, gonocoxal apodeme; ph, phallus; S, sternite; sur, surstylus; T, tergite.

**Description** (This species was thoroughly described by CHANDLER (1981), and additional observations are listed below):

#### Male.

**Head.** Holoptic, upper ommatidia enlarged, border between upper and lower ommatidia indistinct; ommatrichia lacking. Posteranium subshining, with fine greyish pruinescence, setation reduced. Upper postoccipt somewhat convex, lower postoccipt produced posteriorly. Ocellar triangle raised above ommatidia, lacking setae, clothed in long dense pruinescence. Frons reduced to small area just above antennae, with fine greyish pruinescence. Antenna black, similar to female; scape lacking setulae, short, somewhat similar in length to pedicel; pedicel subovate, ringed with minute subapical setulae; postpedicel ovate-conical, pubescent; stylus arista-like, two-segmented, lacking apical seta-like segment.

**Thorax.** Anterior and posterior spiracles black. Dorsal mesepimeral pocket absent; metasternal furca rod-shaped, lacking anterior and posterior arms. Interseg-

mental ridge between meso- and metapleuron nearly touching metepisternal ridge, forming small internal concavity; ventral and dorsal metepisterna narrowly separated.

**Legs.** Blackish brown.

**Wing.** Length: wing 1.7 mm. Hyaline, with fine microtrichia; lacking basal costal seta(e); veins dark; stigma distinct, confined between apex of Sc and apex of R<sub>1</sub>; C fading beyond M<sub>1+2</sub>. Haltere dark.

**Abdomen.** Black, shiny, with fine greyish pruinescence, bearing scattered minute setulae; lacking longer postero-marginal setae. Segments 1-5 broad, remaining segments progressively narrowed. Tergite 8 slender, rectangular; less than half-length of sternite 8. Abdominal plaques present as minute scars inconspicuously scattered about face of tergite.

**Terminalia.** Symmetrical, unrotated, held obliquely upright from abdomen; concolorous with abdomen. Cercus small, truncate apically in lateral view, weakly sclerotized; hypoproct subtriangular, setose, continuous ventrally with broad subepandrial sclerite. Epandrium clothed with pubescence, bearing several setae, especially along lateral margins; epandrial lamellae with narrow dorsal bridge anterior to cerci (Fig. 3). Epandrial lobe slender, arched (Figs 1,3), extending dorsal to and beyond surstylus; lobe arched and truncate apically; apicolateral margin with setae; inner basal margin with several setae mounted on small tubercles. Surstylus broad, weakly articulated to epandrium; inner apical margin with row of ca. 9 short, flattened spine-like setae (Figs 1,3); subepandrial sclerite broad, articulated with lateral bacilliform sclerites; bacilliform sclerites bear rounded basal knob. Hypandrium short, subtriangular, produced apically as pair of flat, rounded apically, appressed sclerites encircling phallus (Figs 1,2); anterolateral corner extending to articulate with epandrium. Postgonites absent. Ventral apodeme(s) beneath ejaculatory apodeme absent. Gonocoxal apodeme with slender and greatly lengthened rod-like process (Fig. 1), slightly shorter than ejaculatory apodeme; narrow in ventral view, triangular in lateral view. Phallus tube-like, straight; apex with short membranous tube (Fig. 2); phallus not extended beyond epandrium; broad base of phallic plate arched and narrowed from phallus to subepandrial sclerite. Ejaculatory apodeme separated from phallus by membranous sperm sac (Figs 1-3); strongly sclerotized; extended posteriorly as short knob or fulcrum, facilitating lever-like action of apodeme.

**Female.** Length: wing 1.6-1.7 mm.

Similar to male except as follows: mouthparts as in Sinclair & Shamshev (2002). Dichoptic, all ommatidia of equal size. Frons very broad, shiny, bearing minute marginal setulae. Ocellar tubercle slightly prominent,